

PUBLIC HEALTH Bulletin

COUNTY OF ORANGE • HEALTH CARE AGENCY



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Hepatitis A and Immune Globulin

Hepatitis A: The Real Story

Despite the fact that the number of cases of hepatitis A (HA) reported to Orange County Public Health remains at relatively low levels, several months ago HA was making headlines in the County. An immune globulin (IG) clinic at a school in South County coincided with the public announcement recommending IG for patrons of a South County restaurant. We would like to take this opportunity to review the epidemiology of HA in Orange County and the actions Public Health takes when a case of HA is reported to us.

Epidemiology of hepatitis A

HA is spread by the fecal-oral route. Infected persons excrete the virus in their stool for approximately 2 weeks before to 1 week after the onset of jaundice. The HA virus can persist in the environment for weeks. Transmission of HA virus infection most commonly occurs among household and other close contacts. Children under the age of 6 years rarely have significant symptoms of hepatitis and often serve as silent transmitters of the infection to other household members. Foodborne HA can occur when an infected person, especially one with diarrhea, does not wash his/her hands well after a bowel movement (or after changing the diapers of someone with HA) and contaminates food that is not subsequently cooked.

The rate of hepatitis A in Orange County has

steadily decreased since its peak in 1977 at 35.7 cases per 100,000 population. The 1999 rate was the second lowest recorded in Orange County, 9.5 per 100,000. Just under 40% of the reported 1999 cases were in children ages 5-14, making HA a significant cause of disease in the pediatric population. Overall, males outnumbered females with 59.6% of cases. Thirty-five percent of reported cases were white, and 56% were Hispanic.

Diagnosis of Hepatitis A

Diagnosis of acute HA requires laboratory documentation of HA IgM antibody.¹ Unless the HA IgM antibody test is specifically requested, separately or as part of an acute hepatitis panel, laboratories will usually only do the "total" HA antibody test,² which is positive when either HA IgG antibodies or HA IgM antibodies are present. A positive total HA antibody result does not distinguish between current and past HA infection. The laboratory will not automatically do the HA IgM antibody test when the total HA antibody result is positive. HA IgM must be ordered to confirm acute HA infection.

An acute hepatitis panel should include tests for HA IgM antibody, hepatitis B core IgM antibody, hepatitis B surface antigen, and hepatitis C virus antibody. The Current Procedural Terminology (CPT 2000) code for an acute hepatitis panel, CPT #80074, has been revised to include all of these tests.

What Public Health does when a case of hepatitis A is reported

When a case of laboratory-documented acute HA is reported to the health department, an attempt is made to interview the patient to determine where he/she contracted the infection and if he/she might have transmitted the infection to others. **It is helpful if you have instructed the patient that by law you are required to report**

the infection to Public Health and that someone from the health department should be contacting them. Close contacts to the case are identified and, if fewer than 14 days have passed since the exposure, immune globulin (IG) is recommended for the contacts. The Centers for Disease Control and Prevention (CDC) does not recommend HA vaccine for post-exposure prophylaxis; however, the vaccine can be given at the same time as IG. If a contact does not have a source of medical care, he/she must call (714) 834-8180 for an appointment to administer the IG.

In the case of a school child reported with HA, the school is included in the investigation to determine if there were any high-risk activities at school during the time when the child could have transmitted the infection to others. Spread of hepatitis A in elementary, middle and high schools is uncommon; however, if high-risk activities are identified, IG will be recommended for the students who participated if less than 14 days have passed since the activity. If more than 14 days have passed, information will be provided to parents about hepatitis A and its prevention, including vaccination. If there is evidence that infection has spread beyond close contacts of an infected child, IG may be recommended for an entire class or school.

Food handlers are removed from work if they are still in the infectious period. Three criteria must be met before Public Health will make a recommendation for IG for restaurant patrons: 1) the infected person is directly involved in handling, without gloves, foods that will not be cooked before they are eaten; 2) the hygienic practices of the food handler are deficient OR the food handler has had diarrhea; and 3) patrons can be identified and given IG within 2 weeks of exposure.

Pre-exposure Prevention: Vaccine, Hygiene

Two highly effective HA vaccines are available for those aged 2 years or more. Both prod-

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¹ HA IgM antibody may appear in laboratory results as IgM anti-HAV, HAV-M, HAV-IgM, HEPA IgM, HAM, etc.

² Total HA antibody may appear in laboratory results as HEP A AB TOTAL, anti-HAV, HAVAB, anti-HAV (IgG/IgM), etc.

Children and Environmental Health

Announcing the EPA-ordered phase out of the popular household and industrial pesticide Dursban recently, EPA Administrator Carol Browner said: "It is particularly good news for children, who are among the most vulnerable to the risks posed by pesticides." This comment is music to the ears of pediatricians and advocacy groups who have long recognized what regulators have been slow to acknowledge: young children, for a variety of reasons, are particularly susceptible to and disproportionately affected by environmental toxins.

This is true for three basic reasons: First, a child's faster metabolism requires him or her to take in proportionately more food, water and air, and the contaminants therein, than adults. Second, a child's organ systems are still developing and are thus more vulnerable to toxins. And third, children physically occupy and explore the floors, carpets, lawns and lower air spaces that are more often contaminated and which we rarely frequent as adults.

While we, as a nation, lag far behind in reflecting this unique vulnerability in our policy and research, there has been one huge success and much additional progress in recent years. The huge success has been the removal of lead from

gasoline and paint which has resulted in a 40% reduction in the average blood lead level in the U.S. over the past twenty five years. (This success has been more than offset, however, by research showing the toxic effect of lead at much lower levels in the blood than previously thought.) Research on childhood environmental health issues has been given a great boost by the joint EPA/CDC/NIH funding of eleven research centers across the country, two of which are located in California. Progress in the policy arena is reflected in the reauthorization of the federal Food Safety Act in the mid-nineties requiring that the unique vulnerability of children be factored in when setting regulatory thresholds for food contaminants. Advocacy for policy change has been led by such groups as the Children's Environmental Health Network. Most recently, the American Academy of Pediatrics has published a handbook for pediatricians on Pediatric Environmental Health.

While we await further progress in research and policy to address childhood environmental threats there is much each of us can do, whether public health or clinical practitioner, to minimize the impact of environmental threats on children. I would suggest three objectives that we can all

work toward. They address what I believe to be the three most significant environmental threats to a child's health. First, every child at risk is appropriately screened for lead poisoning. Second, every smoking pregnant woman and every smoking parent of an infant or young child is urged and assisted to quit. And third, every parent of a young child is educated about the dangers of ultraviolet light and urged to minimize the child's exposure.

More generally, we all need to learn more about the unique vulnerability of children to environmental toxins and apply that knowledge to our public health and clinical practice.



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Avoiding Pitfalls in Pre-employment Testing of Health Care Workers

Health care workers (HCWs; e.g., physicians, nurses, emergency medical personnel, dental professionals and students, medical and nursing students, laboratory technicians, hospital volunteers) are often screened for certain vaccine-preventable diseases as part of the pre-employment process or before their clinical contact begins. The Advisory Committee on Immunization Practices (ACIP) strongly recommends¹ that all HCWs be vaccinated against hepatitis B², influenza, measles, mumps, rubella, and varicella or have documented immunity (except for influenza). A reliable history of varicella infection is considered adequate evidence of immunity.

The decision between testing for immunity or vaccinating a new employee is a cost-effectiveness one, based on the likelihood the employee is immune, the cost of the vaccine, the cost of the laboratory test, and the number of visits required to complete testing or vaccine.

Problems and unnecessary expense can occur in documenting immunity if the appropriate laboratory tests are not requested. This is especially common with measles and rubella antibody

testing. If the IgG antibody, which indicates past infection or previous vaccination, is not specifically requested, some laboratories will do an IgM antibody test only or both IgG and IgM antibody tests. Some of the IgM antibody tests are prone to false positive results. In the case of measles or rubella, a positive IgM result should be reported to Orange County Public Health and will lead to an investigation of the case. This sort of confusion wastes time and money and can delay the hiring process.

The appropriate test for establishing immunity to measles, mumps, rubella and varicella is the IgG antibody for each of these. When testing for IgG antibody to varicella, more sensitive tests, such as enzyme-linked immunosorbent assay (ELISA) or latex agglutination, are preferable to the complement fixation test. Immunity due to past hepatitis B virus (HBV) infection can be assessed by the HBV core antibody (total, not IgM). Serologic testing for vaccine-induced immunity to HBV (HBV surface antibody) is only recommended for HCWs after completion of the vaccine series (to document a response) and at the time of an exposure. Studies have shown that up to

60% of people who initially respond to the vaccine will lose detectable antibody over 12 years; however, they are still protected against infection.¹

Although the ACIP recommendations only address HCWs, the California Department of Health Services recommends that all staff working in hospitals have immunity at least to measles. Health care facilities may want to evaluate the immune status of non-clinical staff who have direct patient contact, particularly in areas such as emergency departments where contact occurs before clinical evaluation of patients.

¹ Immunization of Health-Care Workers. MMWR December 26, 1997 / Vol. 46 / No. RR-18

http://www.cdc.gov/epo/mmwr/preview/ind97_rr.html

² Occupational Health and Safety Administration (OSHA) regulations require that within 10 days of hire an offer of hepatitis B vaccine be made to HCWs who have the potential for blood exposure.

Hepatitis C Training Available on the Web

The Centers for Disease Control and Prevention (CDC) has launched an interactive training program entitled "Hepatitis C: What Clinicians and Health Professionals Need to Know" located at

<http://www.cdc.gov/hepatitis>

Continuing medical and nursing education credits are available from CDC on completion of the training and the American Academy of Family Physicians will grant credits if filed at the completion of the program.

Causes of Death and Death Certificates

Death Certificate data constitute an available, comprehensive, relatively uniform and generally reliable source of information to describe mortality trends in the population. Central to the process of calculating mortality rates and determining leading causes of death is the correct coding of the underlying cause of death. The underlying cause of death, which is the last listed cause in Box 107 of the Death Certificate, is defined as the disease, abnormality, or injury that led to death. It must have an etiologic or pathologic relationship to the intervening and immediate causes of death listed above it, and it must have initiated the lethal chain of events, no matter how long the time interval.

To better aid the physician in completing the causes/conditions of death sections on a Death Certificate, the following rules are provided (refer to graphic below):

- (1) Up to 4 causes of death can be listed

in Box 107 (only 1 cause can be entered on each line). Causes listed in lines A, B, C, and D in Box 107 should be in chronological and pathological order such that the most immediate cause of death is listed in A, any cause listed in B led to the cause in A and preceded it, any cause listed in C led to B and preceded it, and any cause listed in D led to the cause in C and preceded it.

- (2) Time intervals listed in lines A, B, C, and D in Box 107 must be in chronological order with the most recent event or condition first.

- (3) Box 112 should be reserved for conditions contributing to death but not an underlying cause or one of the causes in the chain of events that led to death.

- (4) If an operation is specified in Box 107 or Box 112, then it must also be listed in Box 113.

- (5) If a biopsy is specified in Box 107 or Box 112, then "Yes" must also be checked in Box 109.

- (6) If no autopsy was performed ("No"

checked in Box 110), then either "No" should be checked in Box 111 or Box 111 should be left blank.

A Death Certificate completed in accordance with the rules above will reduce the amount of time spent by the physician, mortuary and registration staff in correcting errors. Additionally, a correct certificate will eliminate the need to file an amendment to the Death Certificate at a later date.

Beginning on January 1, 2000, the County of Orange Health Care Agency, Birth and Death Registration Unit began coding the underlying cause of death on Death Certificates using the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* (ICD-10). The Tenth Revision differs from the Ninth Revision (ICD-9) in a number of respects although the overall content is similar. Changes have been made in the coding rules for mortality to improve the usefulness of the mortality statistics by giving preference to certain categories and by systematically selecting a single cause of

death from a reported sequence of conditions. In order for the coding rules to be applied appropriately, the physician certifying the death and its causes must complete the appropriate sections of the Death Certificate correctly.

Should you have further questions regarding the Death Certificate registration process, please telephone the Birth and Death Registration Unit at (714) 480-6700.

Completing the Causes of Death			
CAUSE OF DEATH	107. DEATH WAS CAUSED BY: (ENTER ONLY ONE CAUSE PER LINE FOR A, B, C, AND D)	TIME INTERVAL BETWEEN ONSET AND DEATH	108. DEATH REPORTED TO CORONER
	IMMEDIATE CAUSE (A) ①	②	<input type="checkbox"/> YES <input type="checkbox"/> NO REFERRAL NUMBER _____
	DUE TO (B)		109. BIOPSY PERFORMED <input type="checkbox"/> YES <input type="checkbox"/> NO ⑤
	DUE TO (C)		110. AUTOPSY PERFORMED <input type="checkbox"/> YES <input type="checkbox"/> NO ⑥
	DUE TO (D)		111. USED IN DETERMINING CAUSE <input type="checkbox"/> YES <input type="checkbox"/> NO ⑥
	112. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN 107 ③		
	113. WAS OPERATION PERFORMED FOR ANY CONDITION IN ITEM 107 OR 112? IF YES, LIST TYPE OF OPERATION AND DATE. ④		

Hepatitis A (Continued from Page 1)

ucts are given as a series of 2 doses, with the second dose given 6-12 months after the first dose. A new product, Twinrix, that combines the HA and hepatitis B vaccines into a single injection, for protection against both diseases in a 3-dose series, is close to licensure in the U.S. In late 1999, the Advisory Committee on Immunization Practices (ACIP) made a recommendation for routine vaccination of all children who live in states that had rates exceeding the national average during 1987-1997; California meets that criterion. For more information, see the Morbidity and Mortality Weekly Report (MMWR), "Prevention of Hepatitis A Through Active or Passive Immunization," October 1, 1999 (Vol. 48, No. RR-12), available at the Centers for Disease Con-

trol and Prevention (CDC) web site:

http://www2.cdc.gov/mmwr/indrr_99.html.

The vaccine is available free of charge for children aged 2-18 years through the Vaccines for Children (VFC) program and Orange County Public Health programs. The Orange County Health Referral line at (800) 564-8448 provides information on the locations where free vaccine is available.

It is also helpful to remind your patients of the importance of good hygiene, including hand washing after using the bathroom, after changing diapers, and before eating or preparing food.

Reporting HA

HA infection must be reported within 1 working day of diagnosis to Public Health under California law. You may report cases by tele-

phone to (714) 834-8180 or by fax to (714) 834-8196.

Immune Globulin

At times, there have been shortages of IG, making it difficult or impossible for physicians to obtain a supply; however, there is no shortage at present, and physicians should be able to order IG from the following sources:

FFF Enterprises	1-800-843-7477
Health Coalition	1-800-456-7283
Chapin Medical	1-800-221-7180
NHS	1-800-344-6087
Nationwide	1-800-997-8846
ASD	1-800-837-5043
Biocare Blood Systems	1-800-304-3064

First and Second Quarters (Weeks 1-26) Number of Cases by Year of Report				
DISEASE	2000	1999	1998	1997
AIDS	147	137	155	149
AMEBIASIS	13	10	18	20
CAMPYLOBACTERIOSIS	167	113	136	222
CHLAMYDIA	2721	2734	1924	1580
CRYPTOSPORIDIOSIS	1	3	6	7
E-COLI O157:H7	3	2	1	4
FOOD POISONING OUTBREAKS	6	10	2	4
GIARDIASIS	113	111	131	127
GONOCOCCAL INFECTION	326	279	317	197
H-FLU, INVASIVE DISEASE	4	4	4	5
HANSEN'S DISEASE, LEPROSY	1	1	3	5
HEPATITIS A (acute)	138	115	127	178
HEPATITIS B (acute)	32	24	41	34
HEPATITIS B (chronic)	832	822	818	690
HEPATITIS C (acute)	1	8	4	0
HEPATITIS C (chronic)	1320	1129	771	362
HEPATITIS OTHER/UNSPECIFIED	17	12	12	17
KAWASAKI DISEASE	10	10	9	9
LISTERIOSIS	5	5	4	8
MALARIA	7	4	9	11
MEASLES (RUBEOLA)	0	4	1	1
MENINGITIS, TOTAL	136	111	236	117
ASEPTIC MENINGITIS	97	78	197	77
MENINGOCOCCAL INFECTIONS	15	11	21	15
MUMPS	3	2	5	5
NON-GONOCOCCAL URETHRITIS	372	268	373	554
PERTUSSIS	12	21	3	6
PELVIC INFLAMMATORY DISEASE	30	11	37	24
RUBELLA	1	0	0	0
SALMONELLOSIS	159	117	175	198
SHIGELLOSIS	101	67	57	66
STREP, INVASIVE GROUP A	24	25	45	38
SYPHILIS, TOTAL	147	NA	76	112
PRIMARY	3	NA	7	2
SECONDARY	15	NA	4	4
EARLY LATENT	16	NA	5	5
LATENT	4	NA	0	4
LATE LATENT	104	NA	56	87
CONGENITAL	5	NA	4	10
NEUROLOGICAL	0	NA	0	0
TUBERCULOSIS	80	101	119	141
TYPHOID FEVER, CASE	0	0	2	1
NA= Not Available				

County of Orange Health Care Agency

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